

WHAT IS CLAIMED IS:

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1. A method for producing a continuous sheet having optical functions comprising the steps of:

extruding a melted thermoplastic resin between a continuous release sheet having a three-dimensional pattern having optical functions on its surface and any one selected from a cooling roll with a mirror surface, a cooling roll with an uneven pattern, another release sheet having a three-dimensional pattern or other sheet having optical functions which has a three-dimensional pattern or does not have a three-dimensional pattern,

transferring the three-dimensional pattern of the release sheet and the mirror surface or uneven pattern of the cooling roll or the three-dimensional pattern of another release sheet or the other sheet on a surface of the thermoplastic resin or simultaneously transferring and laminating the other sheet, and

cooling and removing the continuous release sheet, wherein

the release sheet comprises a curable resin on which a three-dimensional pattern having the optical functions is formed, and a change in a surface-gloss of a layer on which the three-dimensional pattern is formed, is not more than 30% in pressing a hot plate heated to 160°C under a force of 20 kg/cm² for 3 seconds and the release sheet may be wound in a form of cylinder of not more than 12 inches in diameter.

2. A method for producing a continuous sheet having optical functions comprising the steps of:

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extruding a melted thermoplastic resin between a continuous release sheet having a three-dimensional pattern having optical functions on its surface and any one selected from a cooling roll with a mirror surface, a cooling roll with an uneven pattern, another release sheet having a three-dimensional pattern or other sheet having optical functions which has a three-dimensional pattern or does not have a three-dimensional pattern,

transferring the three-dimensional pattern of the release sheet or mirror surface or uneven pattern of the cooling roll or the three-dimensional pattern of another release sheet or the other sheet on a surface of the thermoplastic resin or simultaneously transferring and laminating the other sheet, and

cooling and removing the continuous release sheet, wherein

the release sheet comprises a composite release sheet composed of a curable resin on which a three-dimensional pattern having the optical functions is formed, and a substrate and a change in a surface-gloss of a layer on which the three-dimensional pattern is formed, is not more than 30% in pressing a hot plate heated to 160 °C under a force of 20 kg/cm² for 3 seconds and the release sheet may be wound in a form of cylinder of not more than 12 inches in diameter.

3. A method for producing a continuous sheet having optical functions as set forth in claim 1 or 2, wherein the other sheet to be simultaneously transferred and laminated is a light-transmitting base sheet or an optical function base sheet.

4. A method for producing a continuous sheet having optical functions as set forth in claim 1 or 2, wherein the three-dimensional pattern of the continuous release sheet having optical functions is formed by a metallic embossing roll or a thermoplastic sheet on which a pattern is formed by extruding a melted thermoplastic resin on a metallic embossing roll.

5. A method for producing a continuous sheet having optical functions as set forth in claim 1 or 2, wherein the curable resin is a light-curable resin.

6. A method for producing a continuous sheet having optical functions as set forth in claim 2, wherein a ratio of the thickness of the layer on which a three-dimensional pattern of the composite release sheet having the optical functions to that of the substrate is 1/10 to 2/1.

7. A method for producing a continuous sheet having optical functions as set forth in claim 2, wherein the substrate of the composite release sheet is a sheet of a biaxially orientated polyethylene terephthalate.